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Tyco Healthcare Group LP 555 Long Wharf Drive Mail Stop 8-N1 New Haven, CT 06511			EXAMINER SMITH, PHILIP ROBERT	
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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MICHAEL P. WHITMAN, JOHN E. BURBANK, and  
DAVID A. ZEICHNER

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Appeal 2009-014414  
Application 10/099,634  
Technology Center 3700

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Before DEMETRA J. MILLS, LORA M. GREEN, and  
FRANCISCO C. PRATS, *Administrative Patent Judges*.

MILLS, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

This is an appeal under 35 U.S.C. § 134. The Examiner has rejected the claims for obviousness. We have jurisdiction under 35 U.S.C. § 6(b).

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<sup>1</sup> The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

## STATEMENT OF CASE

The following claims are representative.

1. A flexible shaft, comprising:  
a flexible, elongated outer sheath;  
at least one drive shaft disposed within the outer sheath; and  
a moisture sensor disposed within a coupling connected to an end of the outer sheath configured to communicate sensor data corresponding to the presence of moisture within the outer sheath.

37. A flexible shaft, comprising:  
a flexible, elongated outer sheath;  
at least one drive shaft disposed within the outer sheath;  
a coupling detachably connected to an end of the outer sheath, the coupling being configured to detachably couple to a surgical attachment, wherein the coupling includes an engagement shaft including grooves and a clip having flanges, the flanges being received in longitudinal slits of a hollow engagement member of a surgical attachment, the engagement shaft being received in the clip, the clip engaging the grooves; and  
a moisture sensor disposed within the coupling configured to detect moisture within the outer sheath.

38. A flexible shaft, comprising:  
a flexible, elongated outer sheath;  
at least one flexible drive shaft disposed within the outer sheath; and  
a coupling connected to a distal end of the outer sheath configured to couple to a surgical attachment, wherein the coupling includes a connection mechanism configured to detachably couple to the surgical attachment, wherein the connection mechanism includes an engagement shaft having grooves and a clip having flanges, the clip being configured to be received in a hollow engagement member of a surgical attachment, the flanges of the clip configured to engage in longitudinal slits of the hollow engagement member, the clip configured to receive and secure the engagement shaft in the hollow engagement member, and to frictionally engage with the grooves of the engagement shaft;  
wherein the coupling further includes a moisture sensor.

40. A shaft, comprising:  
an elongated outer sheath;

at least one drive shaft disposed within the outer sheath; and  
a moisture sensor disposed within a coupling connected to an end of  
the outer sheath configured to communicate sensor data corresponding to the  
presence of moisture within the outer sheath.

*Cited References*

Noiles	US 4,576,167	Mar. 18, 1986
Yabe	US 4,654,701	Mar. 31, 1987
Tsuji	US 5,402,769	Apr. 4, 1995
Shimizu et al.	US 6,099,464	Aug. 8, 2000

*Grounds of Rejection*

1. Claims 1, 2, 7-9, 11, 12, 14-16, 19, 40-43, and 48-51 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Noiles in view of Tsuji.
2. Claims 37-39 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Noiles in view of Tsuji.
3. Claims 3, 13, and 44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Noiles in view of Tsuji and in further view of Shimizu.
4. Claims 4-6, 20, 21, and 45-47 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Noiles in view of Tsuji and in further view of Yabe.

FINDINGS OF FACT

1. With regard to claim 1: Noiles discloses:  
a flexible shaft, comprising:  
a flexible, elongated outer sheath (“outer shaft tube 60,” 13/4);  
at least one drive shaft (“flexible band 80,” 8/45) disposed within the outer sheath;

a coupling (comprising elements “234,” “235,” “30,” “78,” “264,” “260,” shown in Figure 11) connected to an endoscope of the outer sheath. (Ans. 4.)

2. The flexible shaft of the staple apparatus of Noiles transmits forces and motions longitudinally between an actuator assembly and a remote stapling assembly. (Col. 2, ll. 30-36.) The stapler of Noiles is mechanical and does not function with electricity. The shaft of Noiles does not include electrical components.

3. Noiles does not disclose a moisture sensor disposed within the coupling configured to communicate sensor data corresponding to the presence of moisture within the outer sheath. (Ans. 5.)

4. Tsuji discloses a “humidity sensor 22” and a “leakage detecting circuit 24” (4/49) which work in tandem to warn of leakage within an outer shaft of an insertable medical instrument. (Ans. 5.) Tsuji further discloses humidity sensor 94 within rigid endoscope 92a (Fig. 12; col. 11. ll. 5-59.)

5. Tsuji does not disclose a humidity sensor within a flexible coupling.

6. The Specification discloses that an electromechanical surgical device includes a flexible shaft including a flexible elongated outer sheath, at least one drive shaft disposed within the outer sheath; and a moisture sensor disposed within the outer sheath configured to detect moisture within the flexible outer sheath. (Spec. 24-27.) Figure 31 shows moisture sensor 990 within flexible shaft 20. (Spec. 39, ll. 27-35.)

7. According to the Specification, the presence of moisture within the flexible shaft 20 may cause corrosion of the components of the flexible shaft, for example the rotatable drive shafts and electronic or electrical components arranged in the shaft. (Spec. 39, l. 33 to 40, ll. 4.).

*Discussion*

ISSUE

The Examiner concludes that,

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a moisture sensor such as that disclosed by Tsuji in the coupling disclosed by Noiles. A skilled artisan would be motivated to do so in order to enhance reusability by enabling sterilization, a necessary precondition of reusability in surgical instruments.

(Ans. 5.)

Appellants argue that there is no apparent reason why one of ordinary skill in the art would include a moisture sensor within the portion of the Noiles device considered by the Examiner to constitute a coupling. (App. Br. 5.)

The issue is: Does the cited prior art teach a moisture sensor disposed within a flexible coupling, as claimed?

PRINCIPLES OF LAW

“In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant.” *In re Rijckaert*, 9 F.3d 1531, 1532 (Fed. Cir. 1993) (citations omitted). In order to determine whether a *prima facie* case of obviousness has been established, we consider the factors set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966): (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at

issue; (3) the level of ordinary skill in the relevant art; and (4) objective evidence of nonobviousness, if present.

### ANALYSIS

Each of the rejections before us turns on the issue whether a moisture sensor is disposed within a flexible coupling in the prior art. While Tsuji discloses a moisture sensor in a rigid endoscope apparatus designed to protect electrical components, it does not disclose a moisture sensor in a flexible coupling. Further, the stapler of Noiles includes no electrical components that would warrant inclusion of a protective moisture sensor. Thus, we do not find that the Examiner has articulated any sound reason, suggestion or motivation in the prior art to include a moisture sensor in the flexible shaft of the surgical stapler of Noiles.

### CONCLUSION OF LAW

The cited references do not support the Examiner's obviousness rejections 1-4, as the prior art does not disclose a moisture sensor disposed within a flexible coupling.

### REVERSED

cdc

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